

Notice of Allowability

Application No.

10/531,300

Examiner

William C. Choi

Applicant(s)

BIGMAN, JOEL

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2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 1/22/2007.
2. ☒ The allowed claim(s) is/are 1,2,4,8-14,19-28,74,76,92,94 and 109.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

All claims pending thus being allowable, prosecution on the merits is closed in this application. A statement of the examiner's reasons for allowance is provided in the paragraphs, which follow below.

REASONS FOR ALLOWANCE

Claims 1, 2, 4, 8-14, 19-28, 74, 76, 92, 94 and 109 are allowed.

The instant application is deemed to be directed to a nonobvious improvement over the inventions of Demiryont (U.S. 5,138,481) and De Vries (U.S. 6,091,184 A), as being representative examples in the art to which the instant invention pertains. In particular, said improvement provides optical devices including optical layers, which have indices of refraction, which are a function of a variable, substantially reversible, dopant concentrations, which successfully address the shortcomings of presently known configurations.

More specifically, independent claim 1 is drawn to an optical device comprising an optical layer and first and second conductive layers as claimed, specifically comprising electrical switches in communication with a power source, each switch being in communication with different segments of said second conductive layer, for selectively applying power to said segments (Claim 1, lines 11-14).

Similarly, independent claim 4 is drawn to an optical device comprising an optical layer and first and second conductive layers as claimed, specifically comprising at least two power sources, each in communication with said first conductive layer and different

segments of said second conductive layer, for selectively applying power to said different segments of said conductive layer (Claim 4, lines 9-11).

Independent claim 8 is drawn to an optical device comprising first and second conductive layers, an optical layer, an ion storage layer and an electrolyte layer as claimed, specifically wherein the application of an electric field will cause migration of a dopant between said optical and ion storage layer, resulting in a refractive index change of said optical layer and said electrolyte layer is operative as a wave-guide, and said optical layer is operative as a Grating Wave-guide Coupler (Claim , lines 18-22).

Independent claim 74 is drawn to a method of selectively forming and erasing an optical feature, comprising: providing an optical device, which comprises: an optical layer and first and second conductive layers as claimed, specifically wherein a second conductive layer is arranged over said optical layer and an electric potential is applied between said first and second conductive layers while maintaining a change in light absorption of said wavelength of interest, within said optical layer, at $\pm 10\%$ (Claim 74, lines 8-14).

Independent claim 76 is drawn to a tunable optical filter comprising alternate strata of indices of refraction of n_1 and n_2 being substantially different from each other as claimed, specifically wherein conductive layers are arranged along the midst of each stratum and electrolyte layers are arranged between each of said stratum and at least one tunable index of refraction, selected from the group consisting of n_1 , n_2 , and both n_1 and n_2 is a function of a variable, substantially reversible, dopant concentration of its associated stratum (Claim 76, lines 4-5 & 9-11).

Independent claim 92 is drawn to a method of producing a tunable optical filter comprising arranging alternate strata of indices of refraction of n_1 and n_2 being substantially different from each other as claimed, specifically comprising arranging conductive layers along the midst of each stratum and arranging electrolyte layers between each of said stratum and applying potential differences of alternating polarities to said conductive layers, wherein by said application, a migration of dopant across said electrolyte layers takes place, thus tuning said at least one tunable index of refraction (Claim 92, lines 8-12).

Independent claim 94 is drawn to a tunable optical filter comprising a stack of optical layers as claimed, specifically wherein said optical layers have an index of refraction, which is a function of a variable, substantially reversible, dopant concentration gradient in said optical layers and conductive layers arranged between said optical layers (Claim 94, lines 3-6).

Finally, independent claim 109 is drawn to a method of producing a tunable optical filter comprising stacking optical layers as claimed, specifically wherein said optical layers have an index of refraction, which is a function of a variable, substantially reversible, dopant concentration gradient in said optical layers and comprising arranging conductive layers, between said optical layers; and applying potential differences of alternating polarities to said conductive layers, to form within said optical layers, a concentration gradient of dopant, thus tuning said filter (Claim 109, lines 5-8).

The prior art taken either singly or in combination fails to anticipate or fairly suggest the limitations of applicant's independent claims, in such a manner that a

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rejection under 35 U.S.C. 102 or 103 would be proper. The claimed invention is therefore considered to be in condition for allowance as being novel and nonobvious over prior art.

OTHER REMARKS/INFORMATION

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Choi whose telephone number is (571) 272-2324. The examiner can normally be reached on Monday-Friday from about 9:00 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on (571) 272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W.C.
William Choi
Patent Examiner
Art Unit 2873
April 11, 2007


RICKY MACK
SUPERVISORY PATENT EXAMINER